

IN THE CLAIMS

1-5. (Canceled)

6. (currently amended) A blood treatment system, comprising:

a filter;

an arterial blood line connectable to a patient access and adapted to convey blood from a patient access to the filter;

the filter having a membrane with a blood side and a non-blood side on opposite sides of the membrane of said filter;

a venous blood line connectable to said patient access and adapted to convey blood from said filter to patient access; and

a pump configured to convey blood through said arterial blood line, a sensor configured to sense pressure in said ~~waste~~ non-blood fluid side of said filter, and a controller connected to receive a pressure signal from said sensor and to control a rate of flow of said pump;

said controller being configured to maintain a constant pressure in said arterial blood line by regulating a speed of said pump in response to said pressure signal.

7. (Original) A system as in claim 6, wherein said controller is a microcomputer programmed to compare said pressure signal with a predetermined value.

8. (Original) A system to claim 7, wherein said predetermined value corresponds to a positive pressure.

9. (new) A blood treatment system, comprising:

a filter with a blood side and a non-blood side separated from the blood side by a membrane;

an arterial blood line that conveys blood from a patient access to the filter blood side and a venous blood line connected to the filter blood side that conveys blood back to the patient access; and

a blood pump that conveys blood through the arterial blood line, a controller with a sensor to detect pressure on the filter non-blood side and to vary a rate of flow of the pump such that a constant predefined pressure is maintained in the arterial blood line.